

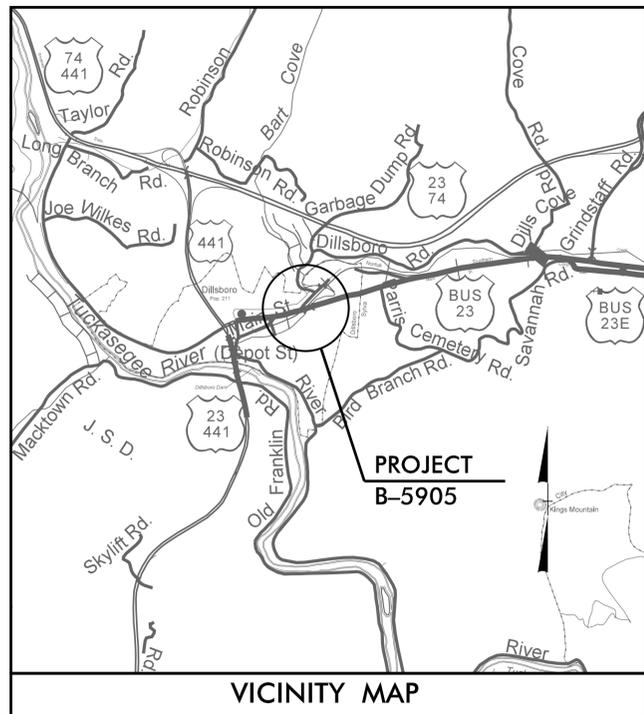
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02/08/19

TIP PROJECT: B-5905



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

**UTILITY CONSTRUCTION PLANS
JACKSON COUNTY**

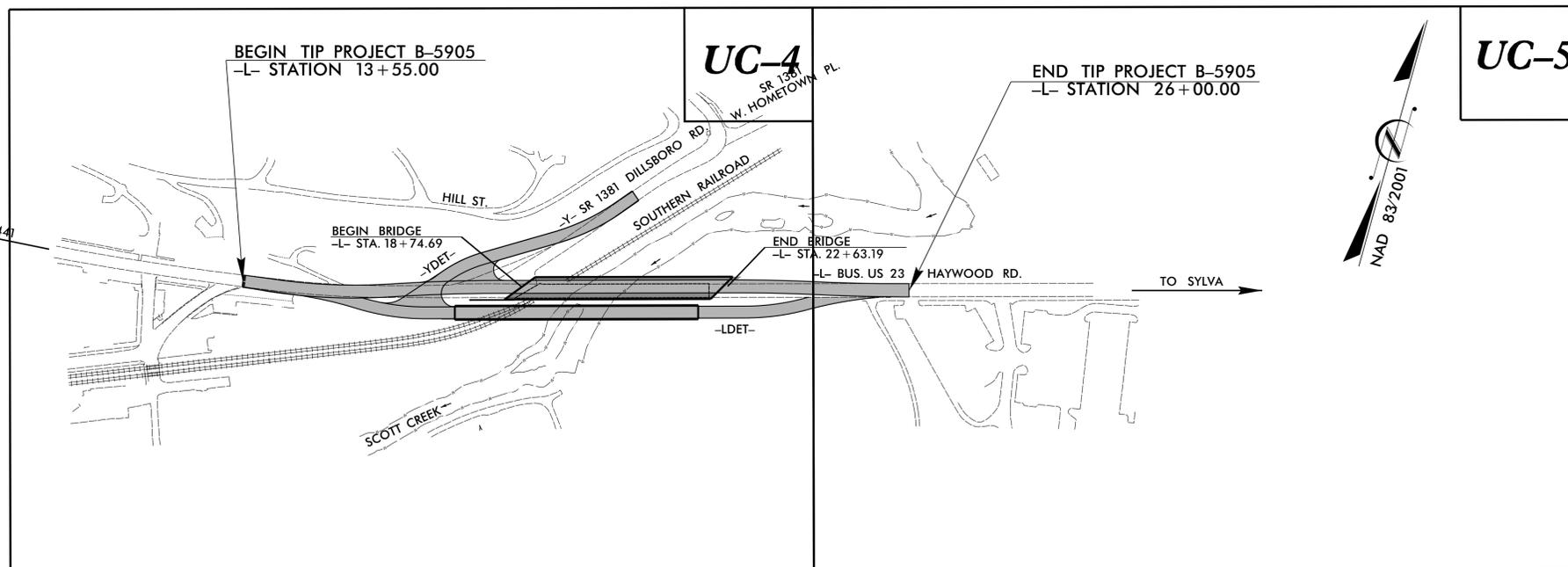
**LOCATION: BRIDGE 27 OVER SCOTT CREEK AND
SOUTHERN RAILROAD ON US 23 BUSINESS**
TYPE OF WORK: WATER & SEWER LINE CONSTRUCTION

T.I.P. NO.	SHEET NO.
B-5905	UC-1

STRUCTURE - No. 27

**UTILITY CONSTRUCTION
PLANS**

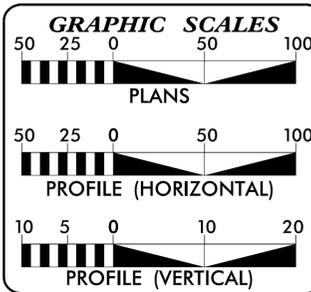
DATE: FEBRUARY 7, 2019



THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF DILLSBORO
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II

**DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED**

CONTRACT:



SHEET NO.	DESCRIPTION
UC-1	TITLE SHEET
UC-2	UTILITY PLAN SHEET SYMBOLS
UC-3	UTILITY NOTES
UC-3A thru UC-3C	UTILITY DETAILS
UC-4 and UC-5	UTILITY PLAN SHEETS
UC-4A and UC-4B	UTILITY PROFILE SHEETS

UTILITY OWNERS ON PROJECT
(1) WATER & SEWER - TUCKASEIGEE WATER & SEWER AUTHORITY (TWSA)

PREPARED IN THE OFFICE OF:

Consulting Engineers
1318-F Patton Avenue
Asheville, NC 28806
(828) 253-2796

SEAL: [Professional Engineer Seal]

Dean Helstrom, P.E. UTILITY PROJECT ENGINEER
Lynn Mann, P.G. PROJECT UTILITY COORDINATOR
David Dawson UTILITY PROJECT DESIGNER

PREPARED IN THE OFFICE OF:
DIVISION OF HIGHWAYS
UTILITIES UNIT
UTILITIES ENGINEERING

1555 MAIL SERVICES CENTER
RALEIGH NC 27699-1555
PHONE (919) 707-6690
FAX (919) 250-4151

Barry D. Mosteller ASSISTANT BRIDGE PROGRAM MANAGER
Bob Golding UTILITIES ENGINEER
Tim Goins, P.E. VHB PROJECT ENGINEER

STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

UTILITIES PLAN SHEET SYMBOLS

PROPOSED WATER SYMBOLS

Table listing proposed water symbols including Water Line (Sized as Shown), various Degree Bends (11 1/4, 22 1/2, 45, 90), Plug, Tee, Cross, Reducer, Gate Valve, Butterfly Valve, Tapping Valve, Line Stop, Line Stop with Bypass, Blow Off, Fire Hydrant, Relocate Fire Hydrant, Remove Fire Hydrant, Water Meter, Relocate Water Meter, Remove Water Meter, Water Pump Station, RPZ Backflow Preventer, DCV Backflow Preventer, Relocate RPZ Backflow Preventer, Relocate DCV Backflow Preventer.

PROPOSED SEWER SYMBOLS

Table listing proposed sewer symbols including Gravity Sewer Line (Sized as Shown), Force Main Sewer Line (Sized as Shown), Manhole (Sized per Note), Sewer Pump Station.

PROPOSED MISCELLANEOUS UTILITIES SYMBOLS

Table listing proposed miscellaneous utilities symbols including Power Pole, Telephone Pole, Joint Use Pole, Telephone Pedestal, Utility Line by Others (Type as Shown), Trenchless Installation, Encasement by Open Cut, Encasement.

Table listing miscellaneous utilities symbols including Thrust Block, Air Release Valve, Utility Vault, Concrete Pier, Steel Pier, Plan Note, Pay Item Note.

EXISTING UTILITIES SYMBOLS

Table listing existing utilities symbols including Power Pole, Telephone Pole, Joint Use Pole, Utility Pole, Utility Pole with Base, H-Frame Pole, Power Transmission Line Tower, Water Manhole, Power Manhole, Telephone Manhole, Sanitary Sewer Manhole, Hand Hole for Cable, Power Transformer, Telephone Pedestal, CATV Pedestal, Gas Valve, Gas Meter, Located Miscellaneous Utility Object, Abandoned According to Utility Records (AATUR), End of Information (E.O.I.).

Table listing existing utilities symbols including Underground Power Line, Underground Telephone Cable, Underground Telephone Conduit, Underground Fiber Optics Telephone Cable, Underground TV Cable, Underground Fiber Optics TV Cable, Underground Gas Pipeline, Aboveground Gas Pipeline, Underground Water Line, Aboveground Water Line, Underground Gravity Sanitary Sewer Line, Aboveground Gravity Sanitary Sewer Line, Underground SS Forced Main Line, Underground Unknown Utility Line, SUE Test Hole, Water Meter, Water Valve, Fire Hydrant, Sanitary Sewer Cleanout.

*For Existing Utilities Utility Line Drawn from Record (Type as Shown) Designated Utility Line (Type as Shown)

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M:\Asheville\water-sewer\31751-01-TWSA-B-5\page_4.dwg and S:\Relocation\Utilities\B-5\page5_LITL_UC-3.dwg
 2/8/19

UTILITY CONSTRUCTION

JACKSON COUNTY

PROJECT REFERENCE NO. B-5905	SHEET NO. UC-3
DESIGNED BY: DRD	
DRAWN BY: DRD	
CHECKED BY: DWH	
APPROVED BY: DWH	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	

UTILITY CONSTRUCTION
PLANS ONLY

UTILITY CONSTRUCTION

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GENERAL NOTES:

1. THE PROPOSED UTILITY CONSTRUCTION SHALL MEET THE APPLICABLE REQUIREMENTS OF THE NC DEPARTMENT OF TRANSPORTATION'S "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" DATED JANUARY 2018.

2. THE EXISTING UTILITIES BELONG TO TUCKASEIGEE WATER AND SEWER AUTHORITY (TWSA). PLEASE CONTACT MR. DAN HARBAUGH, 1246 WEST MAIN STREET SYLVA, NC 28779, (828) 586-5189 EXT. 203 dharbaugh@twsanc.us

3. ALL WATER LINES TO BE INSTALLED WITHIN COMPLIANCE OF THE RULES AND REGULATIONS OF THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY, DIVISION OF WATER RESOURCES, PUBLIC WATER SUPPLY SECTION. ALL SEWER LINES TO BE INSTALLED WITHIN COMPLIANCE OF THE RULES AND REGULATIONS OF THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY, DIVISION OF WATER RESOURCES, WATER QUALITY SECTION. PERFORM ALL WORK IN ACCORDANCE WITH THE APPLICABLE PLUMBING CODES.

4. THE UTILITY OWNER OWNS THE EXISTING UTILITY FACILITIES AND WILL OWN THE NEW UTILITY FACILITIES AFTER ACCEPTANCE BY THE DEPARTMENT. THE DEPARTMENT OWNS THE CONSTRUCTION CONTRACT AND HAS ADMINISTRATIVE AUTHORITY. COMMUNICATIONS AND DECISIONS BETWEEN THE CONTRACTOR AND UTILITY OWNER ARE NOT BINDING UPON THE DEPARTMENT OR THIS CONTRACT UNLESS AUTHORIZED BY THE ENGINEER. AGREEMENTS BETWEEN THE UTILITY OWNER AND CONTRACTOR FOR THE WORK THAT IS NOT PART OF THIS CONTRACT OR IS SECONDARY TO THIS CONTRACT ARE ALLOWED, BUT ARE NOT BINDING UPON THE DEPARTMENT.

5. PROVIDE ACCESS FOR THE DEPARTMENT PERSONNEL AND THE OWNER'S REPRESENTATIVES TO ALL PHASES OF CONSTRUCTION. NOTIFY DEPARTMENT PERSONNEL AND THE UTILITY OWNER TWO WEEKS PRIOR TO COMMENCEMENT OF ANY WORK AND ONE WEEK PRIOR TO SERVICE INTERRUPTION. KEEP UTILITY OWNERS' REPRESENTATIVES INFORMED OF WORK PROGRESS AND PROVIDE OPPORTUNITY FOR INSPECTION OF CONSTRUCTION AND TESTING.

6. THE PLANS DEPICT THE BEST AVAILABLE INFORMATION FOR THE LOCATION, SIZE, AND TYPE OF MATERIAL FOR ALL EXISTING UTILITIES. MAKE INVESTIGATIONS FOR DETERMINING THE EXACT LOCATION, SIZE AND TYPE MATERIAL OF THE EXISTING FACILITIES AS NECESSARY FOR THE CONSTRUCTION OF THE PROPOSED UTILITIES AND FOR AVOIDING DAMAGE TO EXISTING FACILITIES. REPAIR ANY DAMAGE INCURRED TO EXISTING FACILITIES TO THE ORIGINAL OR BETTER CONDITION AT NO ADDITIONAL COST TO THE DEPARTMENT.

7. MAKE FINAL CONNECTIONS OF THE NEW WORK TO THE EXISTING SYSTEM WHERE INDICATED ON THE PLANS, AS REQUIRED TO FIT THE ACTUAL CONDITIONS, OR AS DIRECTED.

8. MAKE CONNECTIONS BETWEEN EXISTING AND PROPOSED UTILITIES AT TIMES MOST CONVENIENT TO THE PUBLIC, WITHOUT ENDANGERING THE UTILITY SERVICE, AND IN ACCORDANCE WITH THE UTILITY OWNER'S REQUIREMENTS. MAKE CONNECTIONS ON WEEKENDS, AT NIGHT, AND ON HOLIDAYS IF NECESSARY.

9. ALL UTILITY MATERIALS SHALL BE APPROVED PRIOR TO DELIVERY TO THE PROJECT. SEE 1500-7, " SUBMITTALS AND RECORDS" IN SECTION 1500 OF THE STANDARD SPECIFICATIONS.

3. CONTRACTOR'S ATTENTION IS DIRECTED TO SECTIONS 102, 107 AND 1550 OF THE STANDARD SPECIFICATIONS CONCERNING TRENCH LESS INSTALLATION. IT IS CONTRACTOR'S RESPONSIBILITY TO HAVE BORE DESIGNED AND SEALED BY A LICENSED NORTH CAROLINA PROFESSIONAL ENGINEER. NO DAMAGE SHALL BE ALLOWED TO RIVER, WETLANDS OR BUFFER ZONES.

4. IF HDPE PIPE IS INSTALLED BY DIRECTIONAL DRILL. IT SHALL BE FILLED WITH WATER AND NOT BE CONNECTED TO ANY OTHER PIPE OR FITTING FOR ONE WEEK FROM THE TIME OF INSTALLATION.

5. NEW WATER LINES MUST BE PRESSURE TESTED AT 200 PSI OR 1.5 TIMES AVERAGE STATIC PRESSURE IN PROJECT AREA, WHICH EVER IS MORE FOR 2 HOURS. TEST TO OBSERVED BY TUCKASEIGEE WATER AND SEWER REPRESENTATIVE.

6. SERVICE INTERRUPTIONS SHALL BE SCHEDULED WITH TUCKASEIGEE WATER AND SEWER AUTHORITY AND SHALL BE COMPLETED DURING OFF-PEAK HOURS. AFTER 9 PM AND BE COMPLETED BY 4 AM, UNLESS AUTHORIZED BY TUCKASEIGEE WATER AND SEWER AUTHORITY. INTERRUPTION SHALL NOT EXCEED 8 HOURS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING TEMPORARY POTABLE WATER SUPPLIES TO ANY CUSTOMER UPON REQUEST BY THE COUNTY AND/OR WHEN DURATION OF THE WATER SERVICE LOSS OR DISRUPTION EXCEEDS 4 HOURS.

7. ALL NC DEQ-DWR-PWS AND LOCAL TESTING MUST BE COMPLETED AND APPROVED PRIOR TO CONNECTING THE NEW CONSTRUCTION TO THE EXISTING WATER LINES.

8. THE PROFESSIONAL ENGINEER (PE) SHALL OBTAIN AND PROVIDE THE NC DEQ "AUTHORIZATION TO CONSTRUCT" PERMIT TO THE UTILITY CONTRACTOR BEFORE THE CONSTRUCTION OF THE WATER LINE SHALL BEGIN. THE UTILITY CONTRACTOR MUST POST A COPY OF THE NC DEQ "AUTHORIZATION TO CONSTRUCT" PERMIT ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY ON SITE PRIOR TO THE START OF CONSTRUCTION. THE PERMIT MUST BE MAINTAINED ON SITE THROUGHOUT THE ENTIRE CONSTRUCTION PROCESS OF THE PROPOSED WATER LINES THAT WILL SERVE THIS PROJECT.

9. HDPE PRESSURE PIPE FOR POTABLE WATER SHALL MEET THE REQUIREMENTS OF NSF 61.

10. ANY NECESSARY CONNECTIONS FOR TESTING AND FILLING THE INSTALLED WATER MAIN WILL BE REQUIRED AND CONSIDERED INCIDENTAL TO THE WATER MAIN.

PROJECT SPECIFIC NOTES:

1. A MINIMUM OF 12 LINEAR FEET OF DUCTILE IRON PIPE WITH MECHANICAL RESTRAINED JOINTS SHALL BE INSTALLED ON THE SOUTHERN TIE-IN AND A MINIMUM OF 20 LINEAR FEET OF DUCTILE IRON PIPE WITH MECHANICAL RESTRAINED JOINTS SHALL BE INSTALLED ON THE NORTHERN TIE-IN ON EACH END OF DIRECTIONAL DRILLING PIPE TO THE CONNECTION OF THE EXISTING WATER LINE. THRUST COLLARS ARE REQUIRED AT EACH END OF HDPE PIPE.

2. ALL FITTINGS SHALL BE DUCTILE IRON MECHANICAL JOINT USING GRIP RINGS. NO GLUE OR PUSH-ON FITTINGS ARE ALLOWED. THRUST BLOCKING IS REQUIRED.

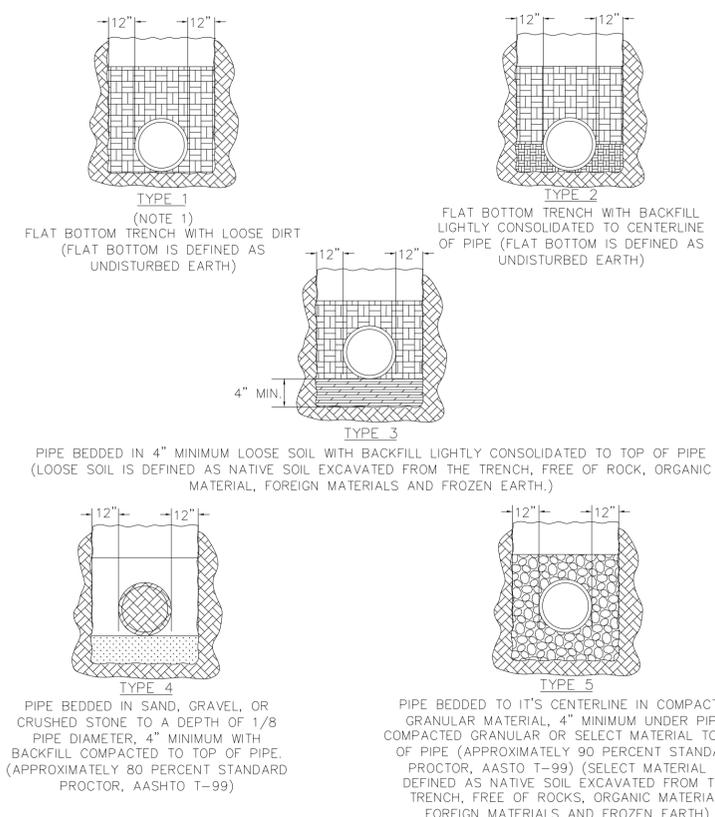


Consulting Engineers
 Tri-Cities, Tennessee
 423-467-8400

<input type="checkbox"/> Boone, NC 828-355-9933	<input type="checkbox"/> Spartanburg, SC 864-574-4735
<input type="checkbox"/> Asheville, NC 828-253-2796	<input type="checkbox"/> Milledgeboro, GA 770-627-3509
<input type="checkbox"/> Knoxville, TN 865-546-5800	<input type="checkbox"/> Charleston, SC 843-974-5650
<input type="checkbox"/> Raleigh, NC 919-971-9855	<input type="checkbox"/> Charlotte, NC 704-321-0488
<input type="checkbox"/> Atlanta, GA 770-627-3509	

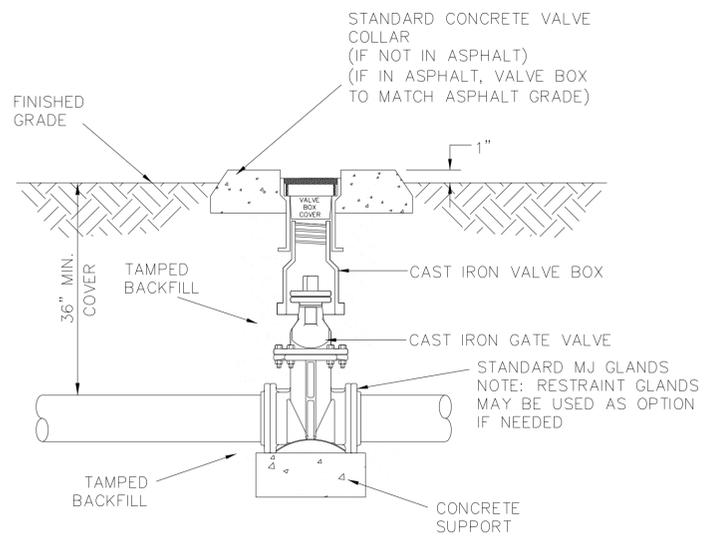
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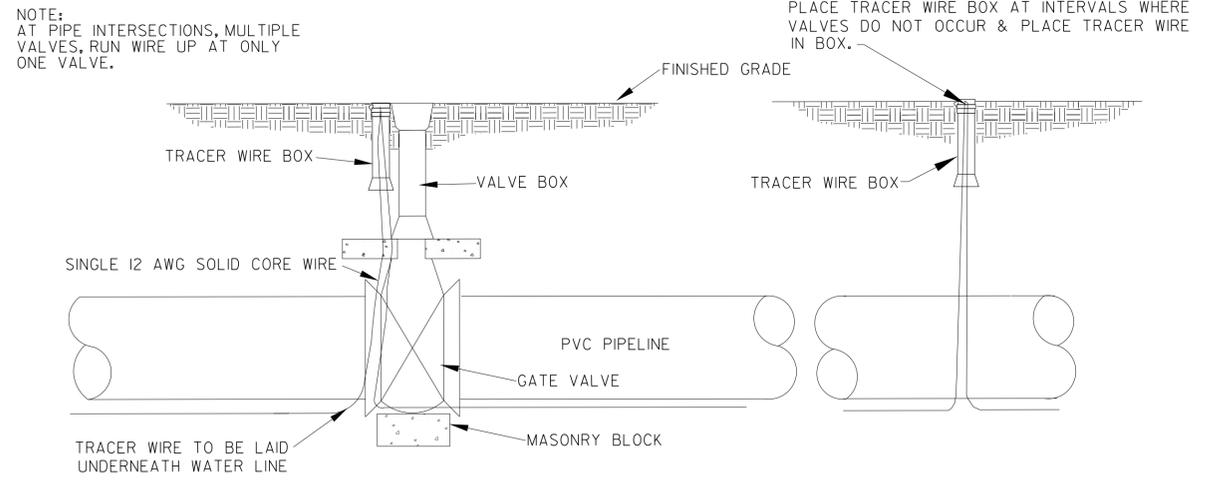


- NOTES:**
- FOR NORMAL PIPE SIZES 14 INCH AND LARGER, CONSIDERATION SHOULD BE GIVEN TO THE USE OF LAYING CONDITIONS OTHER THAN TYPE 1.
 - CONSIDERATION OF THE PIPE-ZONE EMBEDMENT CONDITIONS INCLUDED IN THIS FIGURE MAY BE INFLUENCED BY FACTORS OTHER THAN PIPE STRENGTH. FOR ADDITIONAL INFORMATION ON PIPE BEDDING AND BACKFILL, SEE ANSI/AWWA C600.

WATER MAIN EMBEDMENT DETAILS
NOT TO SCALE



INLINE VALVE DETAIL
NOT TO SCALE

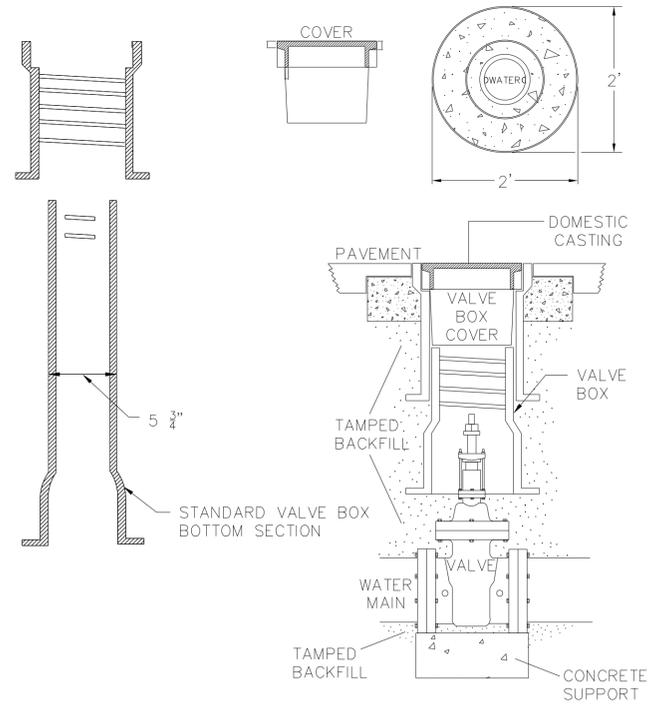


- NOTES:**
- PLACE TRACER WIRE IN TRACER WIRE BOX AS SHOWN.
 - NO UNDERGROUND SPLICING WILL BE ALLOWED. DO NOT SPLICE WIRE WHEN BEGINNING A NEW SPOOL. INSTEAD INSTALL A TRACER WIRE BOX AND ATTACH EACH WIRE TO THE BOX.

TYPICAL TRACER WIRE INSTALLATION DETAIL
NOT TO SCALE

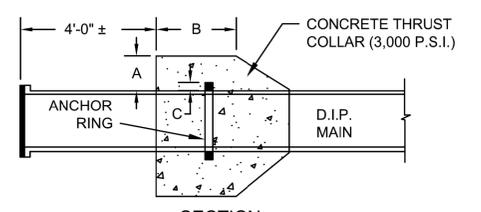
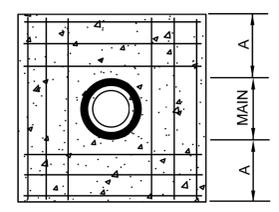
- NOTES:**
- CONCRETE VALVE COLLAR REQUIRED ON ALL VALVES.

APPROVED METHOD FOR EXTENSION OF VALVE BOX

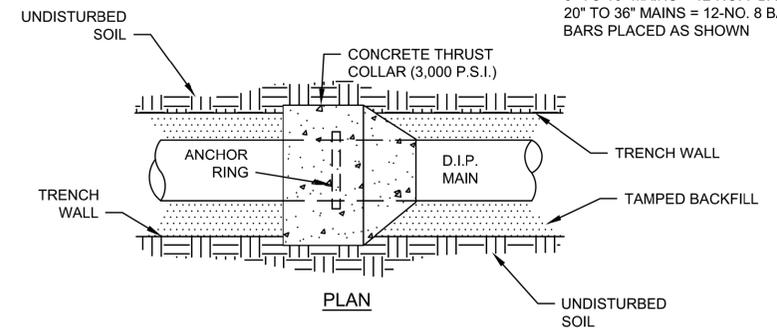


NOTE:
VALVE BOX SHALL BE PER OWNER'S SPECIFICATIONS.

VALVE BOX INSTALLATION
NOT TO SCALE



- NOTE:**
6" TO 16" MAINS = 12-NO. 7 BARS
20" TO 36" MAINS = 12-NO. 8 BARS
BARS PLACED AS SHOWN



SCHEDULE

PIPE DIAMETER	CONCRETE THRUST COLLAR		ANCHOR COLLAR	RINGS REQUIRED
	A	B	C	
6", 8", 12"	1'-0"	1'-0"	2"	ONE
16"	1'-4"	1'-0"	2"	ONE
20"	1'-4"	1'-0"	3"	ONE
24"	1'-4"	1'-0"	3"	TWO
30"	1'-4"	1'-2"	4"	TWO
36"	1'-4"	1'-4"	4"	TWO

THRUST COLLAR INSTALLATION
NOT TO SCALE

JACKSON COUNTY

PROJECT REFERENCE NO. B-5905	SHEET NO. UC-3A
DESIGNED BY: DRD	
DRAWN BY: DRD	
CHECKED BY: DWH	
APPROVED BY: DWH	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151 UTILITY CONSTRUCTION PLANS ONLY	
UTILITY CONSTRUCTION	
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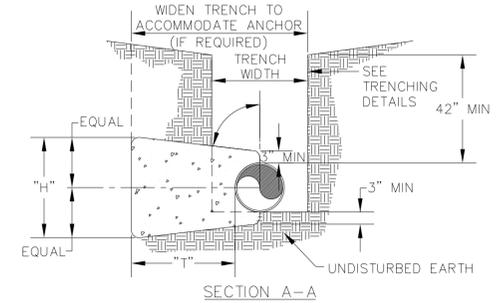
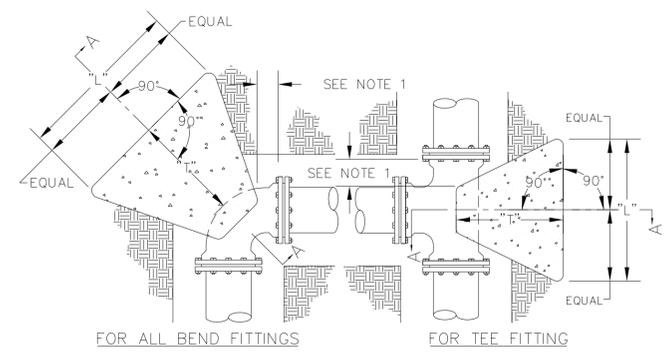
3/1/18

TEST PRESSURE = 150 PSI					
PIPE SIZE	TYPE FITTING	DIMENSIONS (FT)			VOLUME CONCRETE CU. YD.
		L"	H"	T"	
<4 INCHES	11 1/4"	-----	-----	-----	-----
	22 1/2"	1.00	1.00	1.50	0.06
	45"	1.00	1.00	1.50	0.06
	90"	1.00	1.00	2.50	0.09
	TEE	1.00	1.00	2.00	0.07
4 INCHES	11 1/4"	1.00	1.00	2.50	0.09
	22 1/2"	1.00	1.00	2.50	0.09
	45"	1.00	1.00	2.50	0.09
	90"	1.50	1.50	2.50	0.15
	TEE	1.50	1.50	2.00	0.12
6 INCHES	11 1/4"	1.50	1.50	2.50	0.15
	22 1/2"	1.50	1.50	2.50	0.15
	45"	1.50	1.50	2.50	0.15
	90"	2.00	2.00	3.00	0.28
	TEE	2.00	2.00	2.50	0.23
8 INCHES	11 1/4"	2.00	2.00	2.50	0.23
	22 1/2"	2.00	2.00	2.50	0.23
	45"	2.00	2.00	2.75	0.25
	90"	3.00	2.00	3.00	0.39
	TEE	3.00	2.00	2.50	0.32
12 INCHES	11 1/4"	3.00	2.00	3.00	0.28
	22 1/2"	2.00	2.00	3.00	0.28
	45"	3.00	2.50	3.00	0.47
	90"	4.50	3.00	3.50	0.94
	TEE	4.50	3.00	3.00	0.81
16 INCHES	11 1/4"	2.00	2.00	3.00	0.28
	22 1/2"	3.00	2.00	3.00	0.39
	45"	4.00	3.00	3.50	0.84
	90"	6.50	3.50	3.50	1.54
	TEE	6.50	3.50	3.00	1.32

TEST PRESSURE = 200 PSI					
PIPE SIZE	TYPE FITTING	DIMENSIONS (FT)			VOLUME CONCRETE CU. YD.
		L"	H"	T"	
<4 INCHES	11 1/4"	1.00	1.00	1.00	0.04
	22 1/2"	1.00	1.00	1.50	0.06
	45"	1.00	1.00	1.50	0.06
	90"	1.50	1.50	2.50	0.15
	TEE	1.50	1.50	2.00	0.12
4 INCHES	11 1/4"	1.00	1.00	2.50	0.09
	22 1/2"	1.00	1.00	2.50	0.09
	45"	1.50	1.50	2.50	0.15
	90"	1.50	1.50	2.50	0.15
	TEE	1.50	1.50	2.00	0.12
6 INCHES	11 1/4"	1.50	1.50	2.50	0.15
	22 1/2"	1.50	1.50	2.50	0.15
	45"	1.50	1.50	2.50	0.15
	90"	2.50	2.00	3.00	0.33
	TEE	2.50	2.00	2.50	0.28
8 INCHES	11 1/4"	2.00	2.00	2.50	0.23
	22 1/2"	2.00	2.00	2.50	0.23
	45"	2.00	2.00	2.75	0.23
	90"	4.00	2.00	3.00	0.50
	TEE	4.00	2.00	2.50	0.42
12 INCHES	11 1/4"	2.00	2.00	3.00	0.28
	22 1/2"	3.00	2.00	3.00	0.39
	45"	4.00	2.50	3.00	0.61
	90"	5.50	3.00	3.50	1.13
	TEE	5.50	3.00	3.00	0.97
16 INCHES	11 1/4"	2.00	2.00	3.00	0.28
	22 1/2"	4.00	2.00	3.00	0.50
	45"	5.50	3.00	3.50	1.13
	90"	7.50	4.00	3.50	2.01
	TEE	7.50	4.00	3.00	1.72

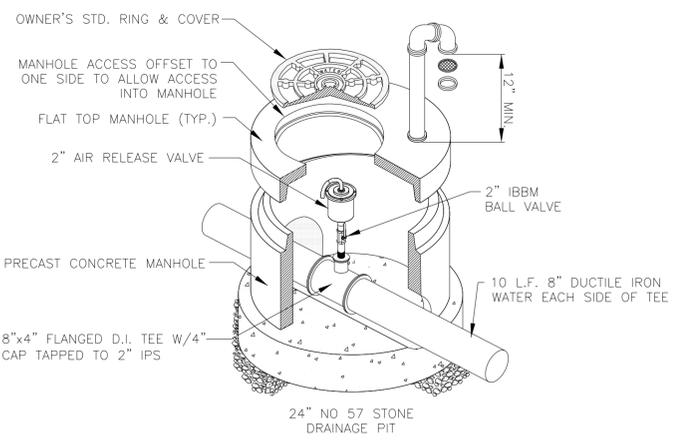
- CHART NOTES:**
- IF BLOCKING EXCAVATION IS IN LIGHTLY COMPACTED FILL AREAS, OR IN AREAS WHERE BOULDERS OR STUMPS HAVE BEEN REMOVED, BLOCKING SIZE MUST BE RE-SIZED FOR THE SPECIFIC LOCATION/CIRCUMSTANCE BY A NC LICENSED PROFESSIONAL ENGINEER.
 - BLOCKING SIZES SHOWN IN THESE TABLES ASSUME THE FOLLOWING:
 - BLOCKING IS CONSTRUCTED IN RESIDUAL SOILS AS SHOWN IN DETAIL
 - SOIL BEARING PRESSURE = 2000 PSF
 - VELOCITY OF FLOW = 15 FPS
 - THIS DETAIL NOT APPLICABLE TO REDUCING BENDS.
 - NEITHER THE WEIGHT OF THE CONCRETE BLOCKING NOR FRICTION BETWEEN CONCRETE BLOCKING AND SOIL WAS ADDED INTO BLOCKING SIZES COMPUTATION. THEREFORE, BLOCKING SIZE IS CONSERVATIVE.

THRUST BLOCKING TABLE
NOT TO SCALE



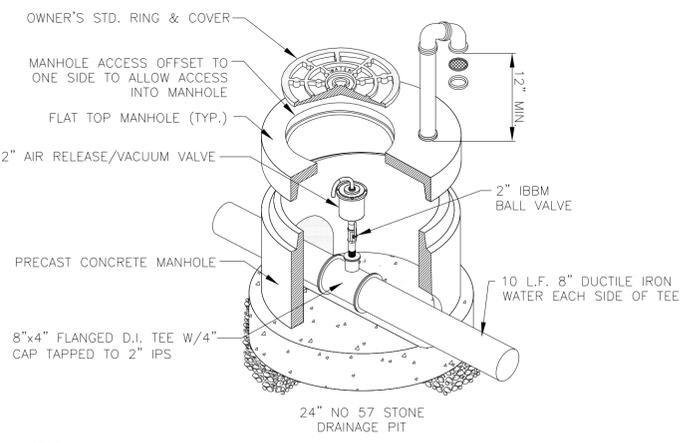
- NOTES:**
- CONCRETE BLOCKING IS TO BE FORMED TO ENSURE ACCESSIBILITY TO FITTINGS AND POURED AGAINST UNDISTURBED EARTH.
 - ALL FITTINGS SHALL BE WRAPPED IN POLYETHYLENE TO PREVENT CONCRETE FROM CONTACTING FITTINGS, BOLTS OR ENDS OF MECHANICAL JOINT BENDS.
 - CONCRETE TO BE MINIMUM 3,000 PSI @ 28 DAYS.
 - WHEN SACKRETE IS TO BE USED, IT SHALL BE PROPERLY MIXED PER MANUFACTURER SPECIFICATIONS.
 - FOR REQUIRED DIMENSIONS, SEE THRUST BLOCKING TABLE.

THRUST BLOCKING
NOT TO SCALE



- NOTES:**
- UNLESS OTHERWISE INDICATED ON THE PLANS, MANHOLE SHALL BE FLAT-TOP.
 - AIR RELEASE VALVE SHALL BE CLA-VAL SERIES 34, PRATT AIR PRO MAX ANTI-SHOCK AIR VALVE OR APPROVED EQUAL.
 - AIR RELEASE VALVE MANHOLES SHALL BE 5' MINIMUM INSIDE DIAMETER.
 - BOTTOM OF VENT PIPE SHALL BE A MINIMUM OF 12" OR 3' ABOVE FLOOD ELEVATION, WHICHEVER IS APPLICABLE.
 - MANHOLE STEPS ARE REQUIRED.
 - PIPE SHALL BE 1-FOOT ABOVE BOTTOM OF MANHOLE & SUPPORTED WITH 2 STAINLESS STEEL PIPE SUPPORTS.

AIR RELEASE MANHOLE
NOT TO SCALE



- NOTES:**
- UNLESS OTHERWISE INDICATED ON THE PLANS, MANHOLE SHALL BE FLAT-TOP.
 - COMBINATION AIR RELEASE & VACUUM VALVES SHALL BE CLA-VAL SERIES 36, COMBINATION AIR RELEASE & VACUUM VALVE, PRATT SERIES AIR PRO MAX COMBINATION AIR VALVE OR APPROVED EQUAL.
 - COMBINATION AIR RELEASE & VACUUM VALVE MANHOLES SHALL BE 5' MINIMUM INSIDE DIAMETER.
 - BOTTOM OF VENT PIPE SHALL BE A MINIMUM OF 12" OR 3' ABOVE FLOOD ELEVATION, WHICHEVER IS APPLICABLE.
 - MANHOLE STEPS ARE REQUIRED.
 - PIPE SHALL BE 1-FOOT ABOVE BOTTOM OF MANHOLE & SUPPORTED WITH 2 STAINLESS STEEL PIPE SUPPORTS.

COMBINATION AIR RELEASE & VACUUM VALVE MANHOLE
NOT TO SCALE

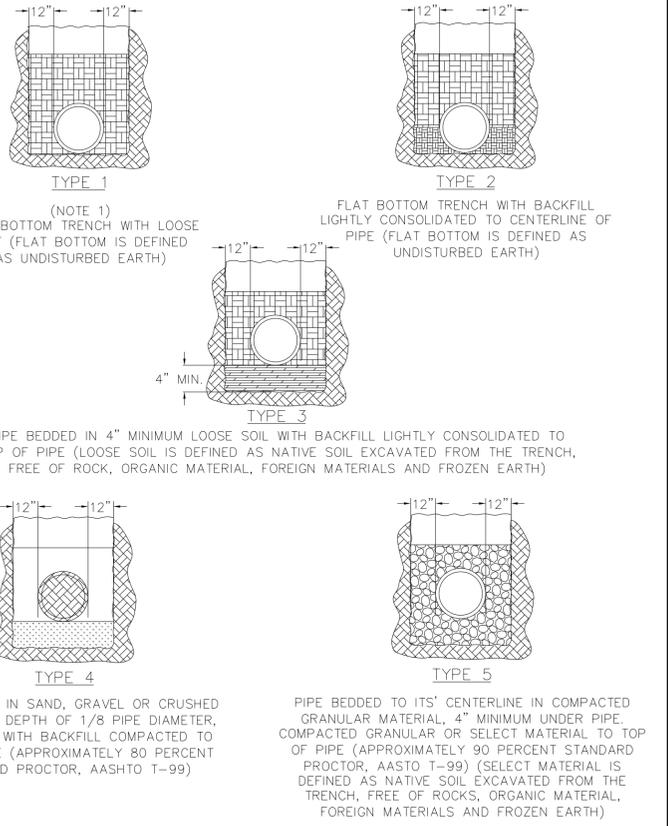
JACKSON COUNTY

PROJECT REFERENCE NO. **B-5905** SHEET NO. **UC-3B**

DESIGNED BY: **DRD**
DRAWN BY: **DRD**
CHECKED BY: **DWH**
APPROVED BY: **DWH**
REVISED:

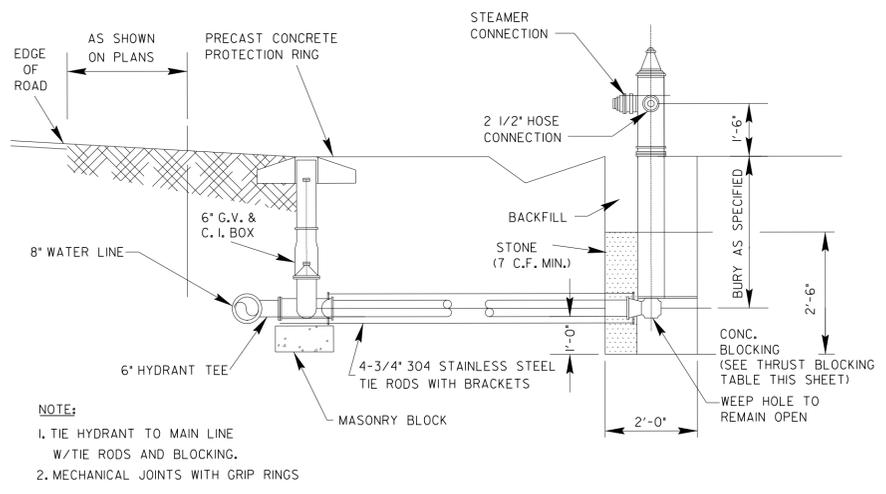
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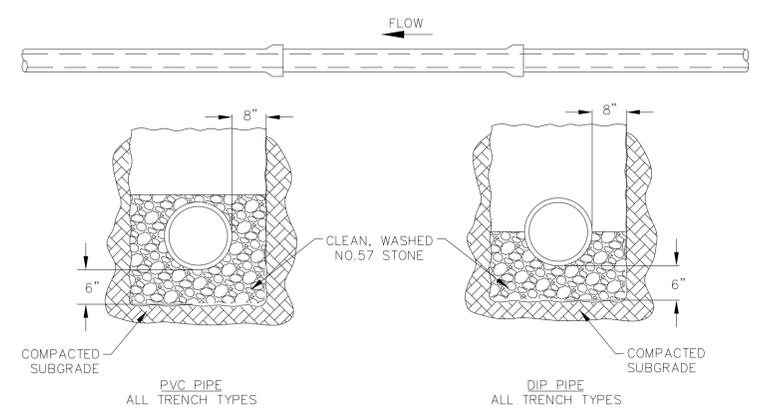
- NOTES:**
- FOR NORMAL PIPE SIZES 14 INCH AND LARGER, CONSIDERATION SHOULD BE GIVEN TO THE USE OF LAYING CONDITIONS OTHER THAN TYPE 1.
 - CONSIDERATION OF THE PIPE-ZONE EMBEDMENT CONDITIONS INCLUDED IN THIS FIGURE MAY BE INFLUENCE BY FACTORS OTHER THAN PIPE STRENGTH. FOR ADDITIONAL INFORMATION ON PIPE BEDDING AND BACKFILL, SEE ANSI/AWWA C600.

SEWER FORCE MAIN EMBEDMENT DETAIL
NOT TO SCALE



- NOTE:**
- TIE HYDRANT TO MAIN LINE W/TIE RODS AND BLOCKING.
 - MECHANICAL JOINTS WITH GRIP RINGS

TYPICAL FIRE HYDRANT INSTALLATION DETAIL
NOT TO SCALE



GRAVITY SEWER EMBEDMENT DETAIL
NOT TO SCALE

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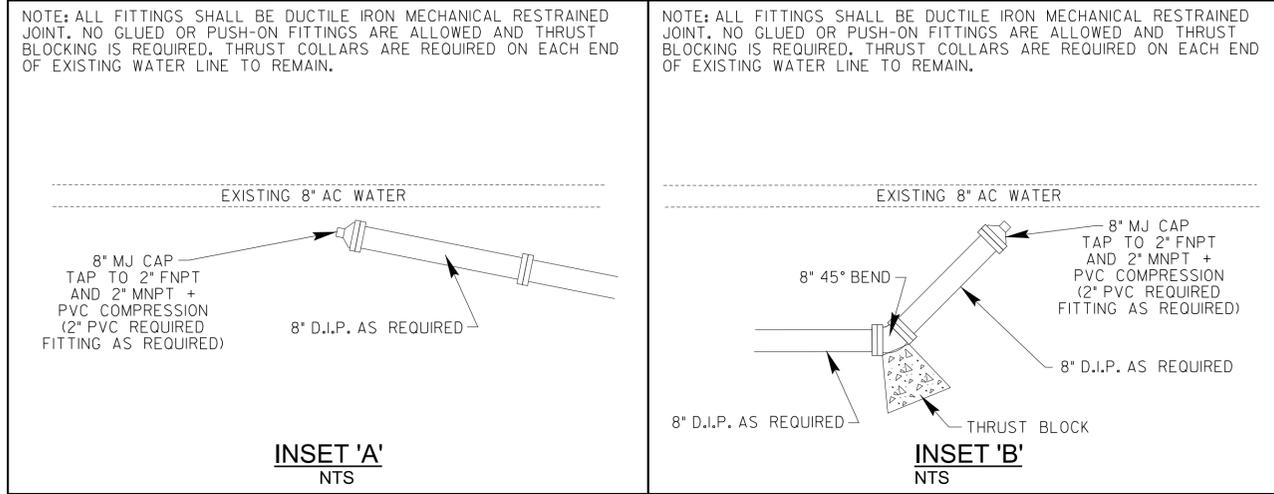
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Tri-Cities, Tennessee
423-467-8400

□ Boone, NC 828-255-9933
□ Asheville, NC 828-253-2796
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□ Charleston, SC 843-974-5650
□ Middleboro, MA 603-248-6600
□ Charlotte, NC 919-971-8655
□ Atlanta, GA 770-627-3509

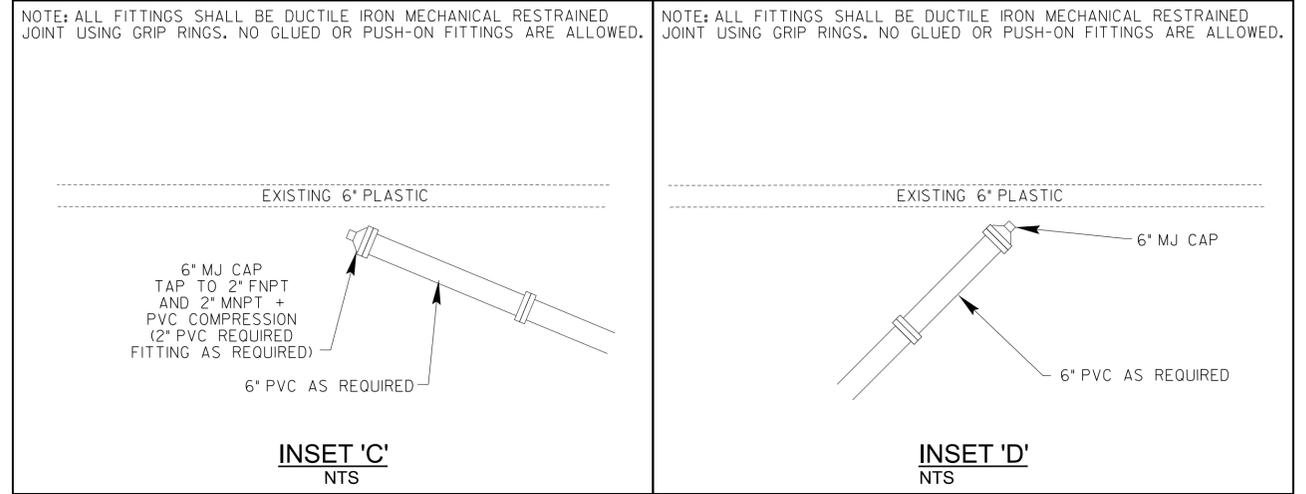
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PROJECT REFERENCE NO.	SHEET NO.
B-5905	UC-3C
DESIGNED BY: DRD	
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REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151 UTILITY CONSTRUCTION PLANS ONLY	
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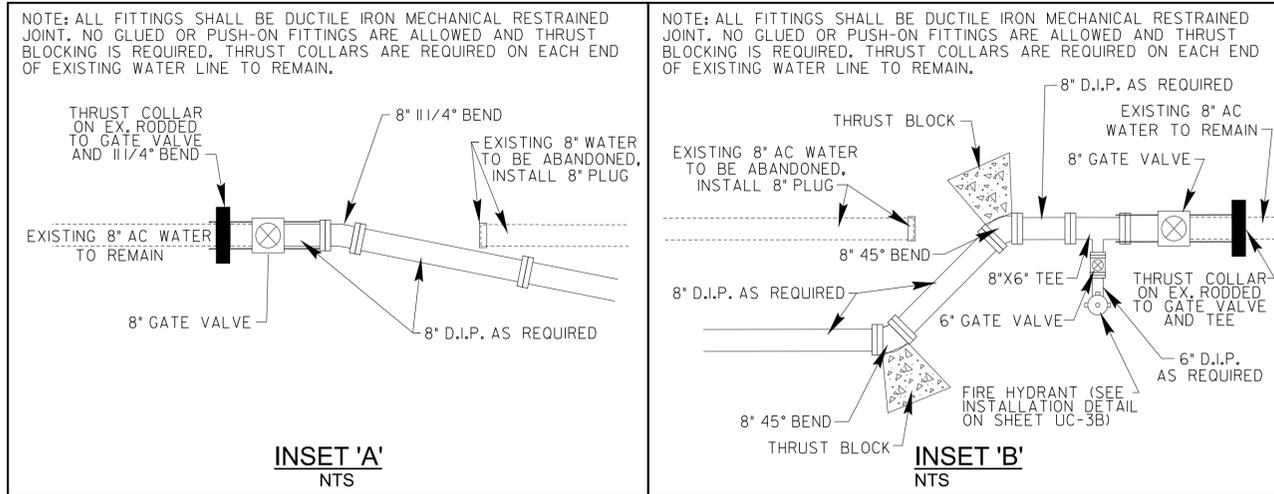
WATER PRE-TESTING DETAILS



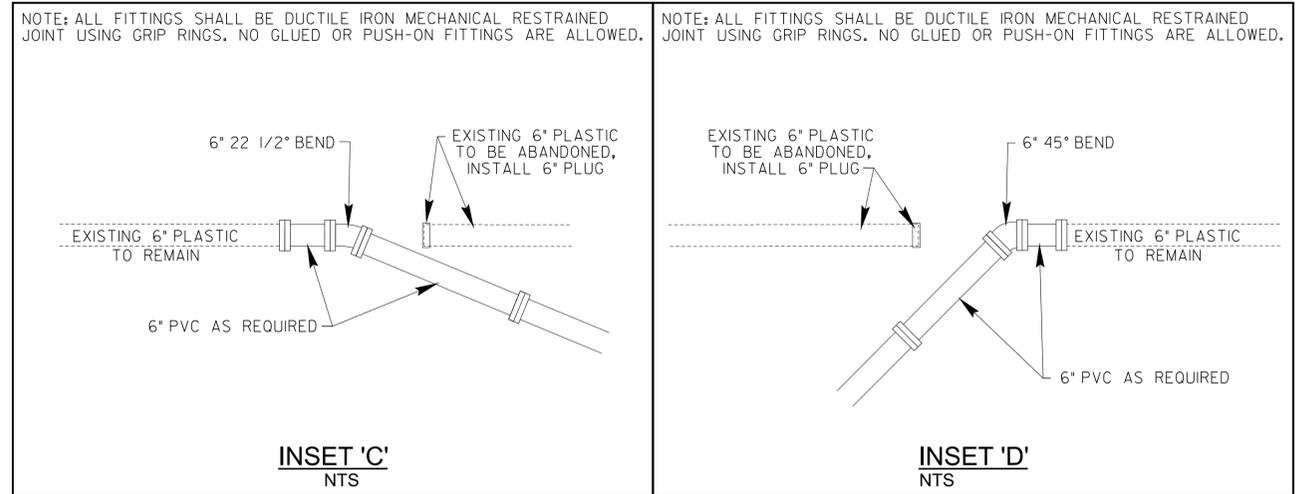
SANITARY SEWER FORCEMAIN PRE-TESTING DETAILS



WATER POST-TESTING DETAILS



SANITARY SEWER FORCEMAIN POST-TESTING DETAILS



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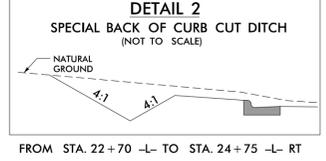
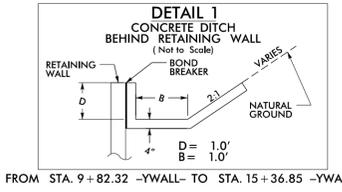
☐ Boone, NC 828-355-9933
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 ☐ Knoxville, TN 865-546-5800
 ☐ Spartanburg, SC 864-574-4735
 ☐ Charleston, SC 843-974-5650
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 ☐ Raleigh, NC 919-971-8855
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02-27-19

THE ESTIMATED QUANTITY OF DUCTILE IRON WATER PIPE FITTINGS ON THIS PLAN SHEET IS 350 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.

THE ESTIMATED QUANTITY OF DUCTILE IRON SEWER PIPE FITTINGS ON THIS PLAN SHEET IS 200 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.



JACKSON COUNTY

PROJECT REFERENCE NO.	B-5905	SHEET NO.	UC-4
DESIGNED BY:	DRD		
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APPROVED BY:	DWH		
REVISED:			
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION			
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UTILITY CONSTRUCTION PLANS ONLY			



REMOVE 300 LF EX. 8" UTILITY PIPE

BEGIN CONST. B-5905
-LDET- STA. 10+00.00

ABANDON 328 LF 8" UTILITY PIPE
SEE SHEET UC-4A FOR -SL-2- PROFILE

-SL-2- 236 LF 6" SANITARY FORCEMAIN SEWER (PVC SDR21, PC200)

ABANDON 255 LF 6" UTILITY PIPE
PLUG EXIST. 6" SEWER LINE

22 1/2° BEND (HORIZONTAL)
-SL-2- STA. 10+05.00

END SEWER CONSTRUCTION
-SL-2- STA. 12+35.80
TIE TO EX. 6" FORCEMAIN
W/LONG PATTERN SLEEVE
-L- STA. 22+87.12
OFFSET 77.38' LT.

SEE INSET 'D'
SHEET UC-3C
FOR CONSTRUCTION CONNECTION DETAILS

45° BEND (HORIZONTAL)
-SL-2- STA. 12+30.80

PLUG EXIST. 6" SEWER LINE

SEE SHEET UC-4A FOR -SL-1- PROFILE

-SL-1- 300 LF 8" GRAVITY SANITARY SEWER (PVC SDR26)

TIE TO EX. SEWER MANHOLE 1
-SL-1- STA. 0+00.00
-L- STA. 10+74.28
OFFSET 281.44' RT.

46 LF 16" STEEL ENCASMENT PIPE BY OPEN CUT (0.25" MIN. THICKNESS)
-SL-1- STA. 1+38 TO STA. 1+84

CONTRACTOR SHALL RECONNECT ALL GRAVITY SANITARY SEWER SERVICES

TIE TO EX. SEWER MANHOLE 2
-SL-1- STA. 2+99.35
-L- STA. 13+49.59
OFFSET 188.93' RT.

SEE INSET 'C'
SHEET UC-3C
FOR CONSTRUCTION CONNECTION DETAILS

BEGIN SEWER CONSTRUCTION
-SL-2- STA. 10+00
TIE TO EX. 6" FORCEMAIN
W/LONG PATTERN SLEEVE
-L- STA. 21+09.63
OFFSET 75.35' RT.

SEE INSET 'A'
SHEET UC-3C
FOR CONSTRUCTION CONNECTION DETAILS

-WL-1- 314 LF 8" WATER LINE (RESTRAINED JOINT DIP PC350, 479 LF TOTAL)
11 1/4° BEND (VERTICAL)
-WL-1- STA. 20+40.00
PLUG EXIST. 8" WATER LINE
11 1/4° BEND (HORIZONTAL)
-WL-1- STA. 20+05.00
8" GATE VALVE
-WL-1- STA. 20+03.00
-WL-1- STA. 20+00.00
TIE-IN TO EXIST. 8" WATER LINE
W/LONG PATTERN SLEEVE
-L- STA. 21+17.11
OFFSET 106.75' RT.

AIR RELEASE VALVE MANHOLE
-WL-1- STA. 21+26

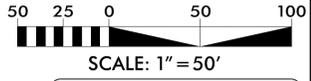
SEE SHEET UC-4B FOR -WL-1- PROFILE
-WL-1- 314 LF 8" WATER LINE (RESTRAINED JOINT DIP PC350, 479 LF TOTAL)

11 1/4° BEND (VERTICAL)
-WL-1- STA. 20+40.00
PLUG EXIST. 8" WATER LINE

11 1/4° BEND (HORIZONTAL)
-WL-1- STA. 20+05.00

8" GATE VALVE
-WL-1- STA. 20+03.00

-WL-1- STA. 20+00.00
TIE-IN TO EXIST. 8" WATER LINE
W/LONG PATTERN SLEEVE
-L- STA. 21+17.11
OFFSET 106.75' RT.



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MATCHLINE -L- STA. 24+20.00 SEE SHEET UC-5

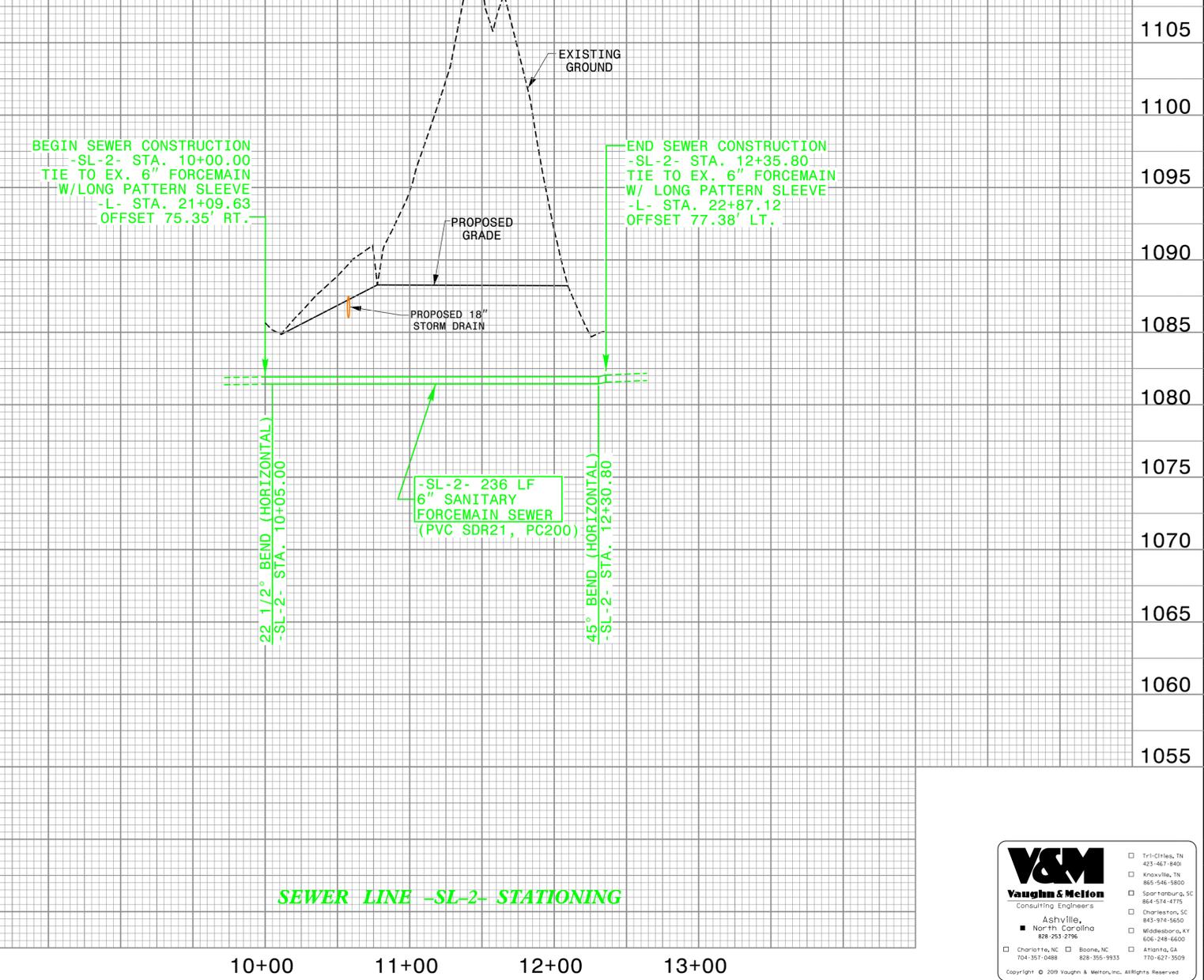
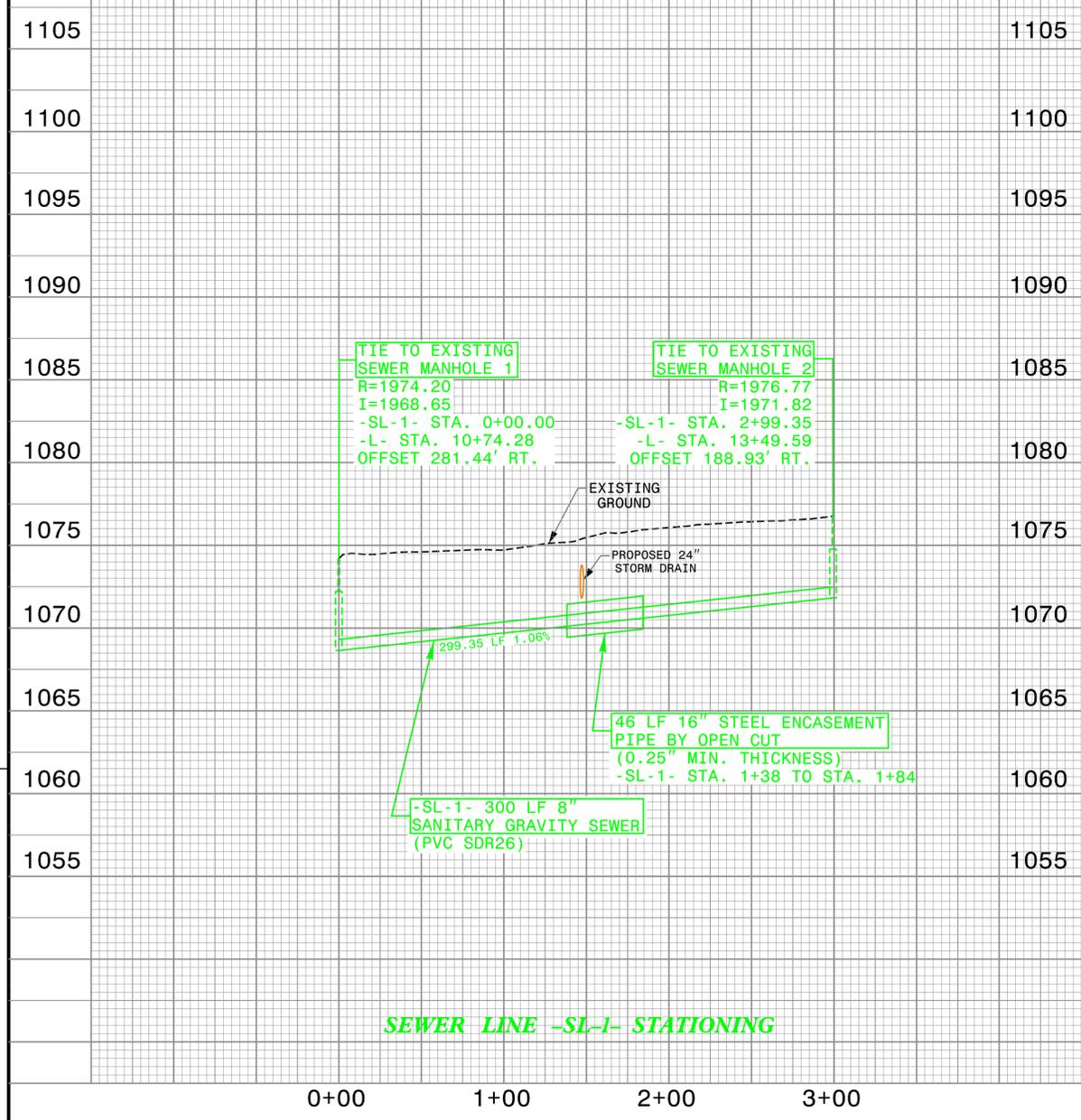
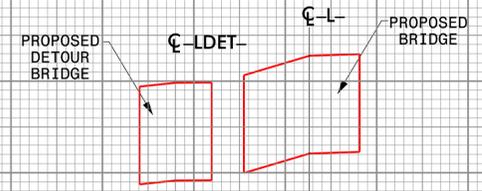
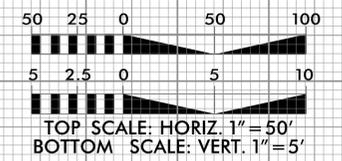
2-27-19

JACKSON COUNTY

PROJECT REFERENCE NO. B-5905	SHEET NO. UC-4A
DESIGNED BY: DRF	
DRAWN BY: DRF	
CHECKED BY: DWH	
APPROVED BY: DWH	
REVISED:	
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SEWER LINE -SL-1- PROFILE

SEWER LINE -SL-2- PROFILE



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 Middletown, KY 606-248-6600
 Charlotte, NC 704-357-0488
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 Atlanta, GA 770-627-3509

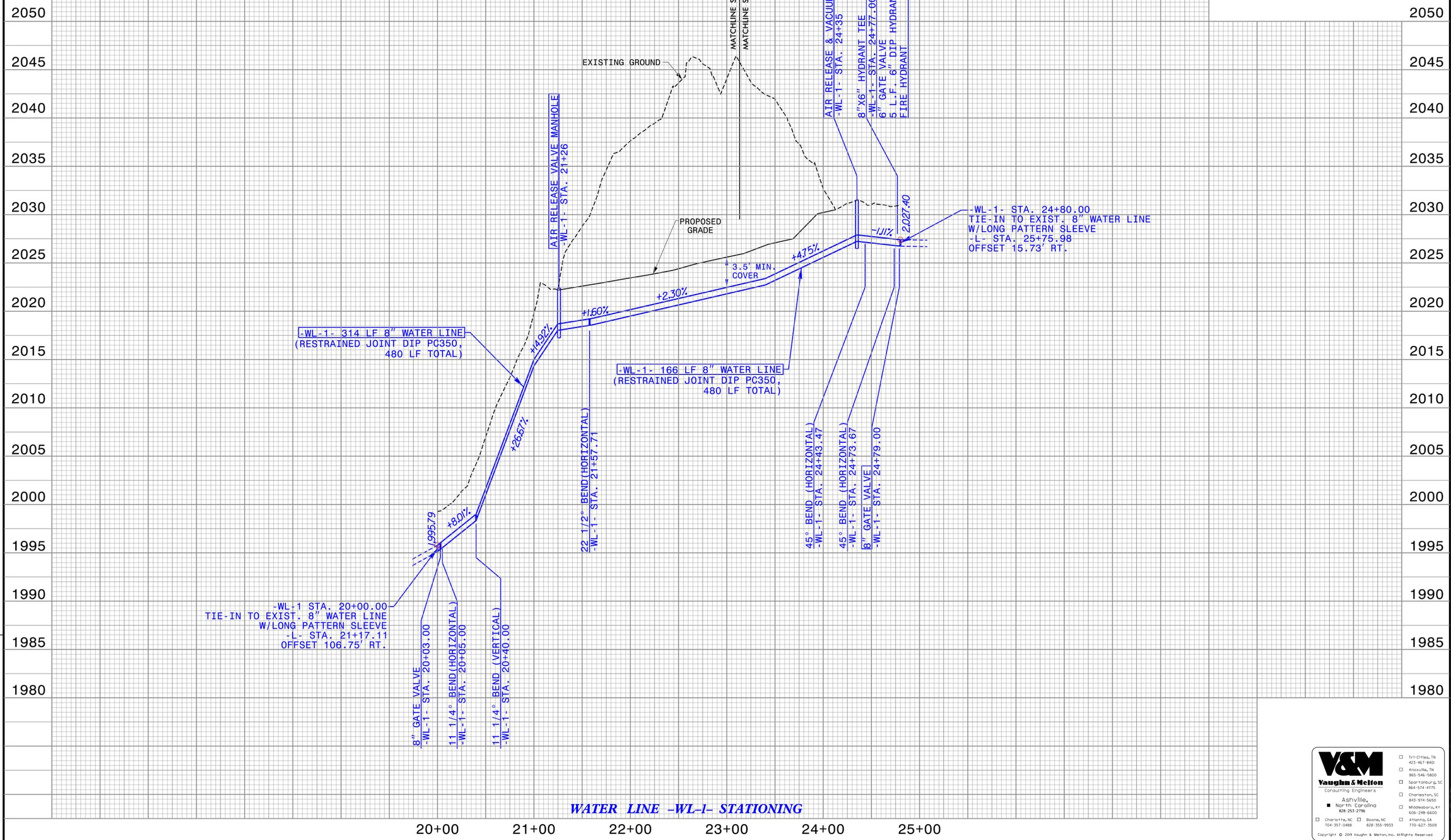
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2-008-19

JACKSON COUNTY

WATER LINE -WL-1- PROFILE

PROJECT REFERENCE NO.	SHEET NO.
B-59053	UC-4B
DESIGNED BY: DRF	
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WATER LINE -WL-1- STATIONING

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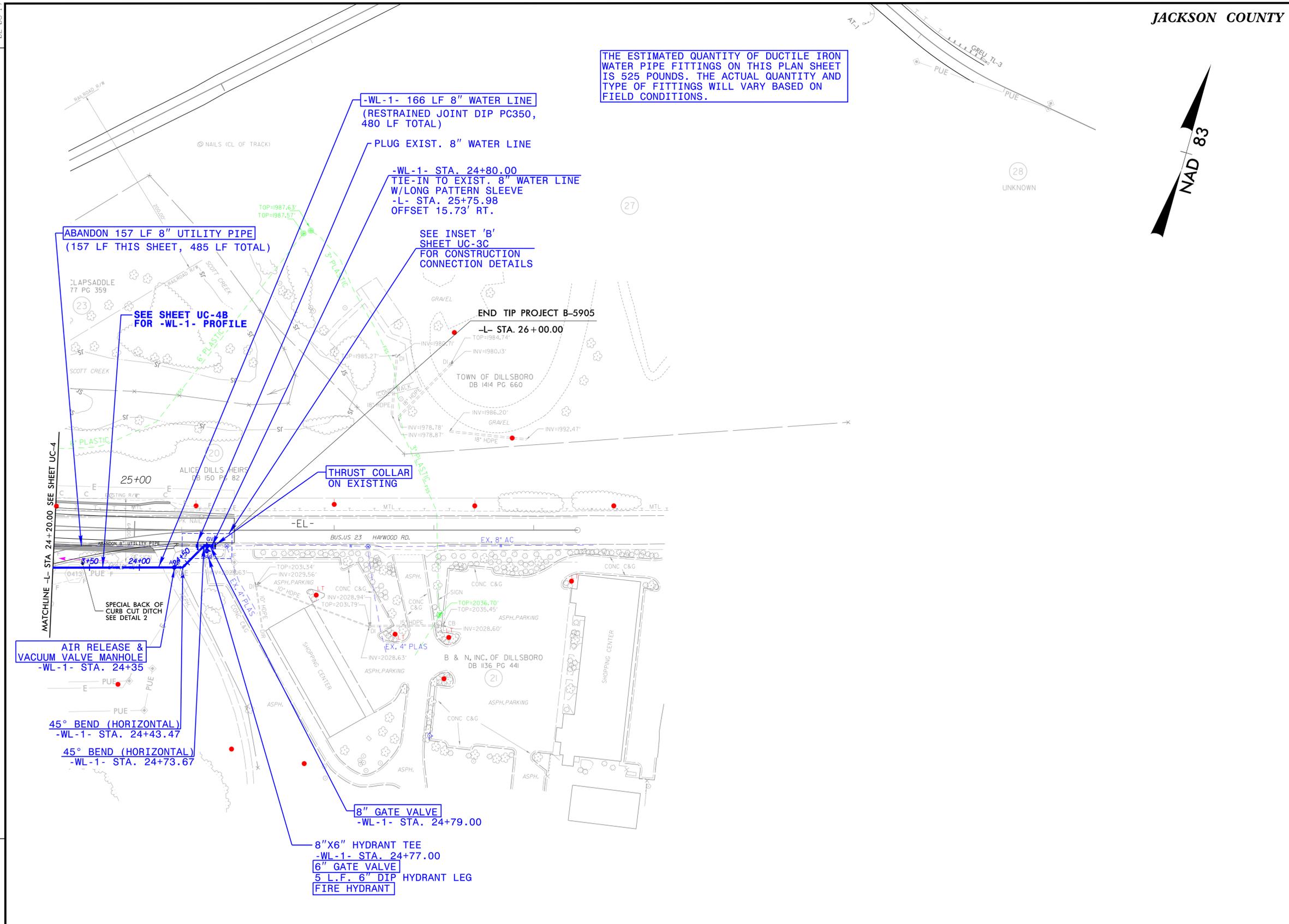
Ashville, North Carolina
828-253-2796

Tri-Cities, TN 423-467-8400
 Knoxville, TN 865-546-5800
 Spartanburg, SC 864-574-4775
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PROJECT REFERENCE NO.	SHEET NO.
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UTILITY CONSTRUCTION	

THE ESTIMATED QUANTITY OF DUCTILE IRON WATER PIPE FITTINGS ON THIS PLAN SHEET IS 525 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.



AIR RELEASE & VACUUM VALVE MANHOLE
 -WL-1- STA. 24+35

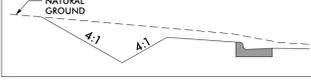
45° BEND (HORIZONTAL)
 -WL-1- STA. 24+43.47

45° BEND (HORIZONTAL)
 -WL-1- STA. 24+73.67

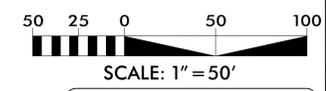
8" GATE VALVE
 -WL-1- STA. 24+79.00

8"X6" HYDRANT TEE
 -WL-1- STA. 24+77.00
 6" GATE VALVE
 5 L.F. 6" DIP HYDRANT LEG
 FIRE HYDRANT

DETAIL 2
 SPECIAL BACK OF CURB CUT DITCH
 (NOT TO SCALE)



FROM STA. 22+70 -L- TO STA. 24+75 -L- RT



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